

Claims:

1. A repair kit (10) for use in the repair of damaged cartilage present at or on the surface of a bone site (20) in an animal or human, in which the damaged cartilage is removed from the site and a groove (25) is formed about the site and into the bone (20) prior to implantation of the repair kit (10), and said repair kit comprising:

a pad (11) of bio-compatible material shaped and dimensioned to occupy at least part of the site from which the damaged tissue has been removed;

elongate connecting portions (14) attached to the periphery of the pad (11) in an array corresponding in shape to the groove (25), said portions being intended to extend away from the general plane of the pad so as to be introduced into the groove and to be anchored therein; and

a retaining element (26) slidable depth wise of the groove (25) in order to anchor at least some of the connecting portions (14) in the groove (25) and thereby locate and retain the pad (11) in said part of the bone site.

2. A repair kit according to claim 1, in which the pad (11) is seeded with chondrocytes or cartilage-forming cells prior to implantation.

3. A repair kit according to claim 1 or 2, in which the elongate connecting portions 14 are formed by one or more flexible tensile elements taken or "threaded" through the pad (11), at or near the periphery of the pad, and which can extend generally perpendicular to the plane of the pad so as to be received by the groove (25) with adjacent elements being spaced apart from each other to allow tissue ingrowth in the groove.

4. A repair kit according to claim 3, in which a single filament, thread or yarn is attached to the periphery of the pad (11), and extends downwardly of the pad in loops of generally parallel lengths.

5. A repair kit according to claim 4, in which the retaining element (26) is pre-attached to the ends of the loops, so that downward movement of the retaining element into the groove (25) pulls the loops downwardly until the pad (11) is received by and then anchored in or at the bone site.

6. A repair kit according to claim 4, in which the ends of the loop are first entered into the groove (25) by other means, including use of an introducer tool, and then the retaining element (26) can be forced downwardly of the groove (25) to engage with the loop ends and pull them downwardly to anchored engagement in the groove.

7. A repair kit according to any one of claims 1 to 6, in which the retaining element (26) is slidable depth wise of the groove (25) and is pre-formed to have a shape corresponding generally with at least part of the shape of the groove, as seen in plan.

8. A repair kit according to any one of claims 1 to 6, in which the retaining element (26) is deformable to take up the required shape, prior to introduction into the groove (25).

9. A repair kit according to any one of the preceding claims, in which the retaining element (26) comprises a ring, or near complete ring, which can be "threaded" through, or connected with, the looped ends of the elongate connecting elements 14, during the manufacture of the repair kit (10), or during the implantation procedures.

10. A repair kit according to any one of the preceding claims, in which the pad (11) is circular in shape, crescent-shaped, part circular with two straight sides, hexagonal, or having other multi-sided shape such that adjacent pads (11) can inter-fit with each other to fill the space made available during the preparation of the bone site.

11. A repair kit according to any one of the preceding claims, in which the pad (11), the elongate connecting portions (14), and the retaining element (16) are pre-assembled on an implant delivery device (46) ready for use by a surgeon when the bone site has been prepared.

12. A repair kit according to claim 11, in which the delivery device (46) is hollow, at least at one end thereof, and onto which the retaining element (47) and the pad (48) are fitted ready for presentation by the delivery device (46) to the prepared bone site and the surrounding groove.

13. A repair kit according to claim 12, in which the elongate connecting portions (49) are arranged on the outer surface of the hollow end of the delivery device (46).

14. A repair kit according to claim 12 or 13, in which the elongate connecting portions (49) are retained in position by a releasable holding arrangement.

15. A repair kit according to claim 14, in which the holding arrangement comprises a band of weak adhesive tape or the like, or a thin tubular band, for engaging the connecting portions (49) and the outer surface of the hollow end of the delivery device (46).

16. A repair kit according to any one of claims 11 to 15, in which the delivery device (46) is capable of being removably mounted, at its remote end, on a manually operable implant tool handle.

17. A repair kit according to claim 16, in which the coupling between the tool handle and the delivery device (46) includes a bearing which permits turning movement of the tool, during manipulation by the surgeon, without transfer of such movement to the delivery device (46).

18. A method for the repair of damaged tissue present at or on the surface of bone in an animal, including a human being, the method comprising forming a narrow groove (25) around at least part of said damaged tissue, which groove extends into the bone below the damaged tissue, replacing the tissue around which the groove extends by at least one layer of bio-compatible replacement material (11), and anchoring the material (11) to the bone by the use of retaining means (14), (26) extending from the material (11) into the groove (25).

19. A method according to claim 18, in which the groove (25) is formed by a reaming device.

20. A method according to claim 19, in which the depth of the groove (25) is at least five times that of the thickness of tissue which is replaced.

21. A method of repair of damaged cartilage tissue at a bone site of an animal or human being, using a repair kit according to any one of claims 1 to 17.